

**THE LOCAL CHARACTERISTIC FUNCTION  
OF INTERPLANETARY PARTICLE PROPAGATION**

G. Green and W. Schlüter  
Institut für Reine und Angewandte Kernphysik  
Universität Kiel  
Olshausenstr. 40  
2300 Kiel, W-Germany

**ABSTRACT**

We define an easily measurable intensity function which characterizes the interplanetary propagation of charged solar flare particles. This function is nearly time invariant during a solar event despite the large variations of intensity and anisotropy, but varies from event to event. It characterizes the systematic and stochastic forces of the interplanetary magnetic field which focus and scatter the particles in pitch angle. The model of focused transport shows that this function is essentially determined by the local shape and amplitude of the pitch angle diffusion coefficient  $\kappa(\mu)$  and by the local value of the focusing length. The time profile of the solar particle injection is typically of negligible influence. The local characteristic function may be used as a powerful new tool for a systematic analysis of flare particle angular distributions. Examples are given.